

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior listings and versions of claims in this application. Please amend claims 1, 2, 27, and 28, and add new claims 35-56, as follows:

1. (Currently Amended) A thermal development apparatus comprising:
a heating section for heating thermal development photosensitive material within which a latent image is established, and maintaining the thermal development photosensitive material at thermal development temperature; and
a conveyance section for conveying the thermal development photosensitive material with using the heating section;
wherein the heating section comprises a cylindrical sleeve, a heating source provided inside of the cylindrical sleeve, and a resilient member on an external surface of the cylindrical sleeve, and
the resilient member comprises a smooth layer on its outermost surface, the smooth layer being configured to prevent a gaseous component from permeating to the resilient member from the thermal development photosensitive material.
2. (Currently Amended) The apparatus of claim 1, wherein thickness of the smooth layer is equal to or more than 30 μ m, ~~more preferably 30 μ m to 50 μ m~~.
3. (Original) The apparatus of claim 1, further comprising a biasing component for biasing the thermal development photosensitive material against the heating section.

4. (Original) The apparatus of claim 1, wherein the smooth layer has predetermined resistance to chemical reaction.
5. (Original) The apparatus of claim 1, wherein the smooth layer is made of a component including fluorine.
6. (Original) The apparatus of claim 5, further comprising a temperature detecting section for detecting surface temperature of the smooth layer by being in contact with the smooth layer.
7. (Original) The apparatus of claim 1, further comprising a cleaning section for cleaning the smooth layer.
8. (Original) Thermal development photosensitive material adoptable for the thermal development apparatus of claim 1, comprising a particle for providing predetermined frictional resistance in a contact surface thereof with the smooth layer.
9. (Original) The photosensitive material of claim 8, wherein a particle diameter of the particle is 0.5µm to 10µm.
10. (Original) The photosensitive material of claim 8, further comprising the same substance as one of which the smooth layer is made.

11. (Original) The apparatus of claim 1, further comprising:
a driving section for driving the heating section to rotate; and
a control section for controlling the heating section so as to rotate the heating section at lower speed when the thermal development photosensitive material is not conveyed than when the thermal development photosensitive material is conveyed.

12. (Original) The apparatus of claim 11, further comprising:
a plurality of opposed rollers placed so as to be opposed to the heating section;
and
a biasing section for biasing the plurality of opposed rollers against the heating section,
wherein the conveyance section conveys the thermal development photosensitive material nipped between the heating section and the opposed roller by the biasing section while the heating section is driven to rotate by the driving section.

13. (Original) The apparatus of claim 12, wherein each of the plurality of opposed rollers is made of metal and grounded.

14. (Original) The apparatus of claim 11, further comprising an electro static charge removal member for discharging electro static charge of the heating section.

15. (Original) The apparatus of claim 12, wherein a first gear is provided at at least one end of the heating section, and a second gear which engages with the first

gear, is provided at at least one end of at least one opposed roller of the plurality of opposed rollers, and the at least one opposed roller is driven to rotate by the first gear and the second gear.

16. (Original) The apparatus of claim 11, wherein the smooth layer is made of fluorine resin.

17. (Original) The apparatus of claim 11, wherein the control section controls the heating section to rotate the heating section at lower speed for a warm-up period of the apparatus than when the thermal development photosensitive material is conveyed.

18. (Original) A thermal development method comprising:
heating and conveying thermal development photosensitive material between a heating section which comprises a smooth layer and which is driven to rotate, and the plurality of opposed rollers biased against the heating section; and
driving the heating section to rotate at lower speed when the thermal development photosensitive material is not conveyed than when the thermal development photosensitive material is conveyed.

19. (Original) The method of claim 18, wherein the smooth layer is made of fluorine resin.

20. (Original) The apparatus of claim 1, further comprising:

a cooling conveyance section for cooling and conveying the thermal development photosensitive material; and

a guide component for guiding the thermal development photosensitive material from the heating section to the cooling conveyance section,

wherein the guide component comprises a pair of rotation components capable of rotating with following a rotation of the heating section, as opposed to both ends of a rotation axis of the heating section for maintaining relative positions to the heating section; and each of the rotation components comprises a component with a high friction coefficient against the smooth layer of the heating section.

21. (Original) The apparatus of claim 20, wherein each of the rotation components comprises a resilient component as the component with the high friction coefficient.

22. (Original) The apparatus of claim 20, wherein the smooth layer is made of fluorine resin.

23. (Original) The apparatus of claim 21, wherein the resilient component includes a rubber layer provided at a periphery of each of the rotation components.

24. (Original) The apparatus of claim 21, wherein the resilient component includes a ring-shaped component provided at a periphery of the rotation component.

25. (Original) The apparatus of claim 21, wherein a groove in which the resilient component is fitted is formed at a periphery of each of the rotation components.

26. (Original) The apparatus of claim 21, wherein the resilient component of each of the rotation components is made of the same substance as the resilient member of the heating section.

27. (Currently Amended) A thermal development apparatus comprising:
a heating section for heating and conveying a ~~photothermographic element~~
thermal development photosensitive material within which a latent image is established,
and maintaining the ~~photothermographic element~~ thermal development photosensitive
material at thermal development temperature; and
a cooling section for cooling and conveying the heated ~~photothermographic~~
element thermal development photosensitive material;
wherein[[,]] the heating section comprises a heating member, a resilient member
outside of the heating member, and a smooth layer at uppermost surface of the resilient
member, the smooth layer being configured to prevent a gaseous component from
permeating to the resilient member from the thermal development photosensitive
material.

28. (Currently Amended) The apparatus of claim 27, wherein thickness of the
smooth layer is equal to or more than 30 μm , ~~more preferably 30 μm to 50 μm~~ .

29. (Original) The apparatus of claim 27, wherein the smooth layer has predetermined resistance to chemical reaction.

30. (Original) The apparatus of claim 27, wherein the smooth layer is made of a component including fluorine.

31. (Original) Thermal development photosensitive material adoptable for the thermal development apparatus of claim 27, comprising a particle for providing predetermined frictional resistance in a contact surface thereof with the smooth layer.

32. (Original) The photosensitive material of claim 31, wherein a particle diameter of the particle is $0.5\mu\text{m}$ to $10\mu\text{m}$.

33. (Original) The photosensitive material of claim 31, further comprising the same substance as one of which the smooth layer is made.

34. (Original) The apparatus of claim 27, wherein the apparatus conveys various size of the photothermographic element, which is formed in a square shape and which is any width in a perpendicular direction to a conveying direction of the heating section.

35. (New) A thermal development apparatus comprising:

a heating section for heating thermal development photosensitive material within which a latent image is established, and maintaining the thermal development photosensitive material at thermal development temperature; and

a conveyance section for conveying the thermal development photosensitive material using the heating section;

wherein the heating section comprises a cylindrical sleeve, a heating source provided inside of the cylindrical sleeve, and a resilient member on an external surface of the cylindrical sleeve, and

the resilient member comprises a smooth layer on its outermost surface, the smooth layer being made of a component including fluorine,

the apparatus further comprising a temperature detecting section for detecting surface temperature of the smooth layer by being in contact with the smooth layer.

36. (New) A thermal development apparatus comprising:

a heating section for heating thermal development photosensitive material within which a latent image is established, and maintaining the thermal development photosensitive material at thermal development temperature; and

a conveyance section for conveying the thermal development photosensitive material using the heating section;

wherein the heating section comprises a cylindrical sleeve, a heating source provided inside of the cylindrical sleeve, and a resilient member on an external surface of the cylindrical sleeve, and

the resilient member comprises a smooth layer on its outermost surface,
the apparatus further comprising a cleaning section for cleaning the smooth
layer.

37. (New) A thermal development apparatus comprising:
a heating section for heating thermal development photosensitive material within
which a latent image is established, and maintaining the thermal development
photosensitive material at thermal development temperature; and
a conveyance section for conveying the thermal development photosensitive
material using the heating section;
wherein the heating section comprises a cylindrical sleeve, a heating source
provided inside of the cylindrical sleeve, and a resilient member on an external surface
of the cylindrical sleeve,
the resilient member comprises a smooth layer on its outermost surface, and
the thermal development photosensitive material comprises a particle for
providing predetermined frictional resistance in a contact surface thereof with the
smooth layer.

38. (New) The photosensitive material of claim 37, wherein a particle diameter of
the particle is $0.5\mu\text{m}$ to $10\mu\text{m}$.

39. (New) The photosensitive material of claim 37, further comprising the same
substance as one of which the smooth layer is made.

40. (New) A thermal development apparatus comprising:

 a heating section for heating thermal development photosensitive material within which a latent image is established, and maintaining the thermal development photosensitive material at thermal development temperature; and

 a conveyance section for conveying the thermal development photosensitive material using the heating section;

 wherein the heating section comprises a cylindrical sleeve, a heating source provided inside of the cylindrical sleeve, and a resilient member on an external surface of the cylindrical sleeve, and

 the resilient member comprises a smooth layer on its outermost surface,

 the apparatus further comprising:

 a driving section for driving the heating section to rotate; and

 a control section for controlling the heating section so as to rotate the heating section at lower speed when the thermal development photosensitive material is not conveyed than when the thermal development photosensitive material is conveyed.

41. (New) The apparatus of claim 40, further comprising:

 a plurality of opposed rollers placed so as to be opposed to the heating section; and

 a biasing section for biasing the plurality of opposed rollers against the heating section,

wherein the conveyance section conveys the thermal development photosensitive material nipped between the heating section and the opposed roller by the biasing section while the heating section is driven to rotate by the driving section.

42. (New) The apparatus of claim 41, wherein each of the plurality of opposed rollers is made of metal and grounded.

43. (New) The apparatus of claim 40, further comprising an electro static charge removal member for discharging electro static charge of the heating section.

44. (New) The apparatus of claim 41, wherein a first gear is provided at at least one end of the heating section, and a second gear which engages with the first gear, is provided at at least one end of at least one opposed roller of the plurality of opposed rollers, and the at least one opposed roller is driven to rotate by the first gear and the second gear.

45. (New) The apparatus of claim 40, wherein the smooth layer is made of fluorine resin.

46. (New) The apparatus of claim 40, wherein the control section controls the heating section to rotate the heating section at lower speed for a warm-up period of the apparatus than when the thermal development photosensitive material is conveyed.

47. (New) A thermal development apparatus comprising:

 a heating section for heating thermal development photosensitive material within which a latent image is established, and maintaining the thermal development photosensitive material at thermal development temperature; and

 a conveyance section for conveying the thermal development photosensitive material using the heating section;

 wherein the heating section comprises a cylindrical sleeve, a heating source provided inside of the cylindrical sleeve, and a resilient member on an external surface of the cylindrical sleeve, and

 the resilient member comprises a smooth layer on its outermost surface,

 the apparatus further comprising:

 a cooling conveyance section for cooling and conveying the thermal development photosensitive material; and

 a guide component for guiding the thermal development photosensitive material from the heating section to the cooling conveyance section,

 wherein the guide component comprises a pair of rotation components capable of rotating with following a rotation of the heating section, as opposed to both ends of a rotation axis of the heating section for maintaining relative positions to the heating section; and each of the rotation components comprises a component with a high friction coefficient against the smooth layer of the heating section.

48. (New) The apparatus of claim 47, wherein each of the rotation components comprises a resilient component as the component with the high friction coefficient.

49. (New) The apparatus of claim 47, wherein the smooth layer is made of fluorine resin.

50. (New) The apparatus of claim 48, wherein the resilient component includes a rubber layer provided at a periphery of each of the rotation components.

51. (New) The apparatus of claim 48, wherein the resilient component includes a ring-shaped component provided at a periphery of the rotation component.

52. (New) The apparatus of claim 48, wherein a groove in which the resilient component is fitted is formed at a periphery of each of the rotation components.

53. (New) The apparatus of claim 48, wherein the resilient component of each of the rotation components is made of the same substance as the resilient member of the heating section.

54. (New) Thermal development photosensitive material adoptable for a thermal development apparatus, the thermal development apparatus comprising:

a heating section for heating and conveying thermal development photosensitive material within which a latent image is established, and maintaining the thermal development photosensitive material at thermal development temperature; and

a cooling section for cooling and conveying the heated thermal development photosensitive material;

wherein the heating section comprises a heating member, a resilient member outside of the heating member, and a smooth layer at uppermost surface of the resilient member,

the thermal development photosensitive material comprising a particle for providing predetermined frictional resistance in a contact surface thereof with the smooth layer.

55. (New) The photosensitive material of claim 54, wherein a particle diameter of the particle is $0.5\mu\text{m}$ to $10\mu\text{m}$.

56. (New) The photosensitive material of claim 54, further comprising the same substance as one of which the smooth layer is made.